

WHAT IS CLAIMED IS:

Sub B1
1. An imagedisplayingmethodofan imagedisplaying apparatus having a display portion consisted of a plurality of pixels comprising the steps of:

5 taking each of a predetermined number of pixels as one block unit;

forming one screen image for displaying by combining a region for displaying the same information on a plurality of pixels in said one block unit during one scanning period and
10 a region for permitting display of respectively different information on said plurality of pixels in said one block unit.

2. An imagedisplayingmethodofan imagedisplaying apparatus having a display portion consisted of a plurality of pixels
15 comprising the steps of:

taking each of a predetermined number of pixels as one block unit;

discriminating an image to be displayed in each block unit between a dynamic image and a still image;

20 forming one screen image for displaying by combining a region for displaying the same information on a plurality of pixels in said one block unit during one scanning period and a region for permitting display of respectively different information on said plurality of pixels in said one block unit.

3. An image displaying method as set forth in claim 1 or 2, wherein said respective regions can be switched into regions having an arbitrary size greater than or equal to said one block unit.

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4. An image display method as set forth in claim 1 or 2, which further comprises the steps of:

discriminating a definition level of said still image per one block unit; and

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displaying the same information in arbitrarily number of plurality of pixels in said one block unit for still image of low definition level.

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5. An image display method as set forth in claim 1 or 2, wherein said one screen image is consisted of frames in number less than or equal to number of a plurality pixels forming one block unit, and

said plurality of pixels are selected per frame.

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6. An image display method as set forth in claim 1 or 2, which comprises:

arranging a plurality of scanning line and a plurality of signal line of the image displaying apparatus in matrix fashion;

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forming switches connected to intersections of said

scanning line and said signal line and whereby connected to a plurality of scanning line and a plurality of signal line;

dividing opposed electrode opposing to pixel electrodes connected to said switches per a plurality of pixels; and

5 applying driving waveforms at different levels to said signal line and said opposed electrode depending upon a region for displaying the same information and a region for permitting display of different information.

10 7. An image display method as set forth in claim 1 or 2, wherein said image display apparatus is a display device which has a lighting device on a back surface, a pair of transparent substrates having polarizing panel and a liquid crystal layer disposed between said pair of transparent substrates for applying
15 an electrical field to said liquid crystal layer for controlling orienting condition of the liquid crystal layer for displaying the image,

blinking illustration of said lighting device in synchronism with scanning when the region for displaying the
20 same information on a plurality of pixels in one block unit during one scanning period.

8. An image displaying method of an image display system including an image displaying apparatus defined in any one of
25 claims 1 to 7, an image generating device for generating an image

signal to be displayed on said image display apparatus, a display control device for controlling said image display apparatus on the basis of said image signal and an information storage device for holding information corresponding to said image signal,
5 comprising the step of:

discriminating a region for displaying said the same information and a region for displaying different information by said image display apparatus.

10 9. An image displaying method of an image display system including an image displaying apparatus defined in any one of claims 1 to 7, an image generating device for generating an image signal to be displayed on said image display apparatus, a display control device for controlling said image display apparatus on
15 the basis of said image signal and an information storage device for holding information corresponding to said image signal, comprising the step of:

discriminating a region for displaying said the same information and a region for displaying different information
20 by said display control device.

10. An image displaying method of an image display system including an image displaying apparatus defined in any one of claims 1 to 7, an image generating device for generating an image
25 signal to be displayed on said image display apparatus, a display

control device for controlling said image display apparatus on the basis of said image signal and an information storage device for holding information corresponding to said image signal, comprising the step of:

5 discriminating a region for displaying said the same information and a region for displaying different information by said image generating device.

11. An image display apparatus having a display controller
10 for converting an image data into a display data, an image converting circuit and a display panel, comprising:

a frame memory feeding data having different resolution on said display panel and a dynamic image/still image discriminating circuit;

15 said display panel including a signal driver applying an image data signal to signal line, a control signal driver applying a scanning signal to scanning line and a pixel selection driver for applying a display block selection signal to a selection signal line,

20 said display panel taking a predetermined number of pixels among a plurality of pixels arranged in matrix fashion as one block unit, and one screen image for displaying is formed by combining a region for displaying the same information on a plurality of pixels in said one block unit during one scanning
25 period and a region for permitting display of respectively

different information on said plurality of pixels in said one block unit.

12. An image display apparatus having a display controller for converting an image data into a display data, an image converting circuit and a display panel, comprising:

a frame memory feeding data having different resolution on said display panel and a dynamic image/still image discriminating circuit;

said display panel including a signal driver applying an image data signal to signal line, a control signal driver applying a scanning signal to scanning line and a pixel selection driver for applying a display block selection signal to a selection signal line,

said display panel taking a predetermined number of pixels among a plurality of pixels arranged in matrix fashion as one block unit, and one screen image for displaying is formed by combining a dynamic image region for displaying the same information on a plurality of pixels in said one block unit during one scanning period and a still image region for permitting display of respectively different information on said plurality of pixels in said one block unit,

said dynamic image region is displayed on the basis of a dynamic image data from said dynamic image/still image discriminating circuit, and

said still image region is displayed on the basis of the still image data from said frame memory.

13. An image displaying apparatus as defined in claim 11 or
5 12, comprises

a lighting device provided on a back surface;

a pair of transparent substrates having polarizing panel;

a liquid crystal layer disposed between said pair of transparent substrates;

10 one of said pair of transparent substrates having a plurality of said scanning line,

a first signal line and a second signal line formed with a plurality of said scanning lines in a form of matrix, a plurality of first switches formed corresponding to intersections of said
15 plurality of said scanning line and a plurality of said first signal line,

a plurality of second switches formed between a plurality of said second signal line and a plurality of said first switches,

20 one of said pair of transparent substrate having a opposed electrode,

an electric field being applied between said pixel electrodes and said opposed electrode, and

an image being displayed by controlling orienting condition of said liquid crystal.

14. An image displaying apparatus as set forth in claim 11 or 12, wherein said display panel has pixel electrode and opposed electrode for applying a lateral electric field to the pixel portion of said pixel and said opposed electrode.

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15. An image displaying apparatus as set forth in claim 11 or 13, wherein said display panel has the pixel electrode on one of said transparent substrates and the opposed electrode on the other transparent substrate in order to apply a vertical electric field to pixel portion of said pixel.

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16. An image displaying apparatus as set forth in claim 13, wherein a color filter mounted on the pixel portion of said pixel has a stripe structure parallel to said scanning line.

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17. An image displaying apparatus as set forth in claim 13, wherein said lighting device has lighting control means for moving a light emitting region in synchronism with a scanning signal applied to said scanning line.

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18. An image displaying apparatus as set forth in claim 11 or 12, which comprises

a lighting device provided on a back surface;

a pair of transparent substrates having polarizing panel;

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a liquid crystal layer disposed between said pair of

transparent substrates;

one of said pair of transparent substrates having a plurality of said scanning line,

5 a first signal line and a second signal line formed with a plurality of said scanning lines in a form of matrix,

a plurality of first switches formed corresponding to intersections of said plurality of said scanning line and a plurality of said first signal line,

10 a plurality of second switches formed between a plurality of said second signal line and a plurality of said first switches,

pixel electrode connected to a plurality of said first switches or a plurality of said second switches,

opposed electrode connected to a plurality of said first switches or a plurality of said second switches,

15 an electric field being applied between said pixel electrodes and said opposed electrode, and

an image being displayed by controlling orienting condition of said liquid crystal.

20 19. An image displaying apparatus as set forth in claim 11 or 12, which comprises

a lighting device provided on a back surface;

a pair of transparent substrates having polarizing panel;

a liquid crystal layer disposed between said pair of

25 transparent substrates;

one of said pair of transparent substrates having a plurality of said scanning line,

a first signal line and a second signal line formed with a plurality of said scanning lines in a form of matrix,

5 a plurality of first switches formed corresponding to intersections of said plurality of said scanning line and a plurality of said first signal line,

a plurality of second switches formed between a plurality of said second signal line and a plurality of said first switches,

10 pixel electrode connected to a plurality of said second switches,

opposed electrode on one of said pair of transparent substrate,

15 an electric field being applied between said pixel electrodes and said opposed electrode, and

an image being displayed by controlling orienting condition of said liquid crystal.

20. An image displaying apparatus as set forth in claim 18,
20 wherein said display panel has one of pixel electrode and opposed electrode for applying a lateral electric field to pixel portion of said pixel.

21. An image displaying apparatus as set forth in claim 19,
25 wherein said display panel has one of pixel electrode and opposed

electrode for applying a lateral electric field to pixel portion of said pixel.

22. An image displaying apparatus as set forth in claim 18,
5 wherein said display panel has one of pixel electrode and opposed electrode for applying a vertical electric field to pixel portion of said pixel.

23. An image displaying apparatus as set forth in claim 19,
10 wherein said display panel has one of pixel electrode and opposed electrode for applying a vertical electric field to pixel portion of said pixel.

24. An image displaying apparatus as set forth in claim 18,
15 wherein a color filter mounted on the pixel portion of said pixel is a stripe structure parallel to said scanning line.

25. An image displaying apparatus as set forth in claim 19,
20 wherein a color filter mounted on the pixel portion of said pixel is a stripe structure parallel to said scanning line.

26. An image displaying apparatus as set forth in claim 18,
wherein said lighting device has light emission control means for shifting light emitting region in synchronism with the
25 scanning signal applied to said scanning line.

27. An image displaying apparatus as set forth in claim 19,
wherein said lighting device has light emission control means
for shifting light emitting region in synchronism with the
5 scanning signal applied to said scanning line.

28. An image displaying apparatus as set forth in claim 11
or 12, which comprises

a lighting device provided on a back surface;

10 a pair of transparent substrates having polarizing panel;

a liquid crystal layer disposed between said pair of
transparent substrates;

one of said pair of transparent substrates having a
plurality of said scanning line,

15 a first signal line and a second signal line formed with
a plurality of said scanning lines in a form of matrix,

a plurality of switches formed corresponding to
intersections of said plurality of said scanning line and a
plurality of said first signal line,

20 pixel electrode connected to a plurality of said
switches,

opposed electrode formed on one of said pair of transparent
substrates and divided per a plurality of pixels,

an electric field being applied between said pixel
25 electrodes and said opposed electrode, and

an image being displayed by controlling orienting condition of said liquid crystal.

29. An image displaying apparatus as set forth in claim 28,
5 wherein said display panel has pixel electrode for applying lateral electric field to the pixel portion of said pixel and the opposed electrode.

30. An image displaying apparatus as set forth in claim 28,
10 wherein said display panel has pixel electrode provided on one of said pair of transparent substrates for applying vertical electric field to the pixel portion of said pixel and the opposed electrode provided on the other transparent substrate.

31. An image displaying apparatus as set forth in claim 28,
15 wherein a color filter mounted on the pixel portion of said pixel has a stripe structure parallel to said scanning line.

32. An image displaying apparatus as set forth in claim 28,
20 wherein said lighting device has lighting control means for moving a light emitting region in synchronism with a scanning signal applied to said scanning line.

33. An image displaying apparatus as set forth in claim 28,
25 wherein selection signal level to be applied to said scanning

line controlling condition of said switch and selection signal level to be applied to said opposed electrode are selection signal level having more than or equal to two values, and

a level shifter is provided for varying level of an image data signal to be applied to said signal line adapting to the selection signal level of said opposed electrode.

34. An image displaying apparatus as set forth in claim 33, wherein one block unit is formed with predetermined number of pixels,

said scanning line selection signal level and said opposed electrode signal level for the same display on a plurality of pixels in said one block unit in one scanning period and said scanning line selection signal level and said opposed electrode signal level for selecting arbitrary pixel in said one block unit,

switching means is provided for switching the region for the same display on a plurality of pixels in said one block unit in one scanning period and the region permitting different display on a plurality of pixels in one block unit for a plurality times of scan.

35. An image display apparatus as set forth in claim 33, wherein said lighting device has lighting control means for moving a light emitting region in synchronism with a scanning signal

applied to said scanning line.

36. An image displaying system comprising:

an image displaying apparatus having a display panel;

5 an image generating device generating an image signal
displaying on said display panel;

a display control device controlling said image displaying
apparatus on the basis of said image signal; and

10 a frame memory for holding information corresponding to
said image signal connected to said display control device,
said image displaying apparatus including a dynamic image
and a still image discriminating means for discriminating between
the dynamic image and the still image,

15 said display panel taking a predetermined number of pixels
among a plurality of pixels arranged in matrix fashion as one
block unit, and one screen image for displaying is formed by
combining a dynamic image region for displaying the same
information on a plurality of pixels in said one block unit during
one scanning period and a still image region for permitting
20 display of respectively different information on said plurality
of pixels in said one block unit.

37. An image displaying system comprising:

an image displaying apparatus having a display panel;

25 an image generating device generating an image signal

displaying on said display panel;

a display control device controlling said image displaying apparatus on the basis of said image signal; and

a frame memory for holding information corresponding to said image signal connected to said display control device,

said display control device including a dynamic image and a still image discriminating means for discriminating between the dynamic image and the still image,

said display panel taking a predetermined number of pixels among a plurality of pixels arranged in matrix fashion as one block unit, and one screen image for displaying is formed by combining a dynamic image region for displaying the same information on a plurality of pixels in said one block unit during one scanning period and a still image region for permitting display of respectively different information on said plurality of pixels in said one block unit.

38. An image displaying system comprising:

an image displaying apparatus having a display panel;

an image generating device generating an image signal displaying on said display panel;

a display control device controlling said image displaying apparatus on the basis of said image signal; and

a frame memory for holding information corresponding to said image signal connected to said display control device,

aid image generating device including a dynamic image discriminating means for discriminating a dynamic image and the still image, a display panel taking a predetermined block unit as a unit, a plurality of pixels arranged in matrix in said display panel, and one screen image for displaying a dynamic image region for a predetermined block unit on a plurality of pixels in said display panel during a scanning period and a still image region for a predetermined block unit of respectively different information on a plurality of pixels in said one block unit.

5 said display panel taking a predetermined number of pixels
among a plurality of pixels arranged in matrix fashion as one
block unit, and one screen image for displaying is formed by
combining a dynamic image region for displaying the same
information on a plurality of pixels in said one block unit during
one scanning period and a still image region for permitting
10 display of respectively different information on said plurality
of pixels in said one block unit.